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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/054,272	01/22/2002	William J. O'Kane	S01.12-0857/STL 10324	6304

7590

12/18/2003

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EXAMINER

KLIMOWICZ, WILLIAM JOSEPH

ART UNIT	PAPER NUMBER
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2652

DATE MAILED: 12/18/2003

6

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/054,272

Applicant(s)

O'KANE ET AL.

Examiner

William J. Klimowicz

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 October 2003.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-26 is/are pending in the application.
- 4a) Of the above claim(s) 2,6,7,10-19 and 24-26 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,3-5,8,9 and 20-23 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 22 January 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 13) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
- a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

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DETAILED ACTION

Election/Restrictions

Applicants' election with traverse of Group I (corresponding to claims 1-9 and newly presented claims 20-26) and further election of Species I (corresponding to Figure 4), readable on claims 1, 3-5, 8, 9 and 20-23 of the Group I invention, according to Applicants, in Paper No. 5 is acknowledged. The traversal is on the ground(s) that claims 16-19 are sufficiently related to Group I, since Applicant alleges that "the process suggested by the Examiner cannot form 'an active region reducing means for reducing the width of the active region without reducing the width of the writer pole.' "

This is not found persuasive because the Examiner maintains that that the claimed "reducing means" of claim 16 can include etching punch holes into the original magnetic pole with grooves at a side wall to reduce the width while maintaining the original width.

The requirement is still deemed proper and is therefore made FINAL.

Claims 2, 6, 7, 10-19 and 24-26 withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected invention, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in Paper No. 5 (filed November 3, 2003).

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

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A person shall be entitled to a patent unless -

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1, 3, 4, 9, and 20-22 are rejected under 35 U.S.C. 102(e) as being anticipated by Niwa (US 2001/0015871 A1).

As per claims 1 and 20, Niwa (US 2001/0015871 A1) discloses a method of forming a narrow writer pole (3_1) of a write element (10), the method comprising steps of: (a) forming a non-magnetic layer (e.g., 2); (b) forming a writer pole portion (3_1) on the non-magnetic layer (2) having first and second side walls (3_2) which define a width of a magnetically active region, the width of the magnetically active region defining a track width of the write element (10); and (c) transforming the first side wall into a magnetically dead side wall (regions 3_2) thereby reducing the width of the magnetically active region (to a region between regions (3_2)) and the track width of the write element by a thickness of the magnetically dead first side wall (e.g., see FIG. 6). That is, the ions are injected at an angle into the pole (3); as shown in FIG. 7, initially one side is injected with the ions prior to the other side, thus producing a magnetic dead side wall, at one side, as per claim 21. Thus, at least initially, only one side wall is exposed, prior to the other side wall being exposed.

Moreover, as per claim 20, step (c), the ion implantation as disclosed by Niwa (US 2001/0015871 A1) results in reducing the initial width of the magnetically active region without reducing the width of the writer pole portion (3) - see paragraph [0082].

As per claim 3, the formation of step (b) is performed in accordance with at least one process selected from a group consisting of sputter deposition, photolithography, etching,

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milling, and electroplating (i.e., "plating") - see, *inter alia*, paragraphs [0080-0081].

As per claims 4 and 22, wherein the transforming step (c) is performed in accordance with at least one process selected from a group consisting of irradiation and ion implantation - see, *inter alia*, paragraphs [0082].

As per claim 9, wherein the writer pole (3) is either a top pole or a bottom pole of the write element (e.g., see FIGS. 2 and 3).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 5, 8 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Niwa (US 2001/0015871 A1).

See the description of , *supra*.

As per claims 5 and 23, although Niwa (US 2001/0015871 A1) remains silent concerning wherein an element used in ion implantation is selected from a group consisting of nitrogen, argon, boron, phosphorous, and gallium, Official notice is taken that ion implantation utilizing an ion of nitrogen, argon, boron, phosphorous, and gallium is notoriously old and well known and ubiquitous in the art; such Officially noticed fact being capable of instant and unquestionable demonstration as being well-known.

It would have been obvious to one of ordinary skill in the art at the time the invention

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was made to use as the ion implantation disclosed by Niwa (US 2001/0015871 A1), an ion selected from the group consisting of nitrogen, argon, boron, phosphorous, and gallium, as is known.

The rationale is as follows: one of ordinary skill in the art would have been motivated to use as the ion implantation disclosed by Niwa (US 2001/0015871 A1), an ion selected from the group consisting of nitrogen, argon, boron, phosphorous, and gallium, as is known, in order to provide a selected depth and rate of ion implantation, consistent with the overall teachings of Niwa (US 2001/0015871 A1) to reduce writer pole width via introduction of ions into portions of the writer pole.

No new or unobvious result is seen to be obtained by utilizing one prescribed ion for another; the general teaching of Niwa (US 2001/0015871 A1) is to use ions via ion implantation into a magnetic writer pole to reduce the writer pole width, creating dead zones (i.e., non-magnetic zones) that exist via the ion implantation process, irrespective of a particular ion.

As per claim 8, although Niwa (US 2001/0015871 A1) remains silent with respect to the forming step (b) as including: (b)(1) forming photoresist dams on the non-magnetic layer; (b)(2) forming the writer pole portion between the photoresist dams; and (b)(3) removing the photoresist dams, Official notice is taken that such a method of forming a writer pole via "frame plating" is notoriously old and well known and ubiquitous in the art; such Officially noticed fact being capable of instant and unquestionable demonstration as being well-known.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to form the writer pole of Niwa (US 2001/0015871 A1) via such a "frame plating" method, as articulated in claim 8, as is known.

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The rationale is as follows: one of ordinary skill in the art would have been motivated to form the writer pole of Niwa (US 2001/0015871 A1) via such a "frame plating" method, as articulated in claim 8, as is known, in order to form the writer pole of Niwa (US 2001/0015871 A1) in a batch yield manner, wherein many heads can be simultaneously formed on a wafer utilizing a process which lends itself to high precision and large yield rates, as is well known, established and appreciated in the art.

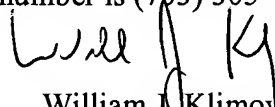
Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to William J. Klimowicz whose telephone number is (703) 305-3452. The examiner can normally be reached on Monday-Thursday (6:30AM-5:00PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hoa T. Nguyen can be reached on (703) 305-9687. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9314.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-4700.


William J. Klimowicz
Primary Examiner
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WJK